

AMENDMENTS TO THE DRAWINGS

Attached is one replacement drawing sheet including Figs. 1 and 2 which should replace the original drawing sheet including Figs. 1 and 2. The replacement sheet includes a change to Fig. 1 to include the section line II-II, and changes to Fig. 2 consistent with the indication of the section line in Fig. 1, including the addition of cross hatching for the conical portion 10 and the conduit 13.

One Replacement Drawing Sheet

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

Submitted with this Amendment is a replacement drawing sheet including amended versions of Figs. 1 and 2 which address the drawing objection discussed on page three of the Official Action. Accordingly, withdrawal of the drawing objection is respectfully requested.

A new Abstract of the Disclosure is presented to address the request present in the Official Action.

Appreciation is expressed to Examiner Cooley for the indication that Claims 2-11 are allowed. Thus, the only original claim currently at issue is independent Claim 1.

Independent Claim 1 defines a method of continuously mixing a first, larger flow and a second, smaller flow in which the second flow is introduced into the first flow in a direction opposite that of the first flow, with the mixed flows being caused to change direction immediately after the mixing process. As claimed, the first flow is throttled and divided into a plurality of subflows immediately before the mixing.

The Official Action observes that the method disclosed in U.S. Patent No. 4,957,626 to Ashbrook et al. can be interpreted in a manner corresponding to the method recited in Claim 1. In this regard, the Official Action comments that the flow along the inlet line 36 in Ashbrook et al. is throttled by the vortex nozzle 32 and is divided into a plurality of subflows immediately before the mixing. One "subflow" in Ashbrook et al. is said to be constituted by the flow from the vortex nozzle 32 and the other "subflow" is said to be constituted by the flow through the vertically extending inlet pipe located within the vortex nozzle 32 as shown in Fig. 4.

To better differentiate the claimed method over the interpretation of the method disclosed in Ashbrook et al., Claim 1 is amended to recite that the plurality of subflows is mixed with the second flow. Support for this exists in, for example, the discussion in the third paragraph on page five of the present application. Taking into account the interpretation expressed in the Official Action, the downward flow through the vortex nozzle 32 shown in Fig. 4 of Ashbrook et al. and the upward flow through the inlet pipe within the vortex nozzle 32 shown in Fig. 4 of Ashbrook et al. are not mixed with the flow entering by way of the ozone inlet line 38. Claim 1 is thus allowable over the disclosure in Ashbrook et al.

New independent Claim 12 is presented for consideration and defines that the method involves introducing a first flow traveling in one direction into a second flow traveling in the opposite direction to effect mixing together of the first and second flows and create mixed flows. In addition, immediately before the mixing of the first and second flows, a part of the first flow is throttled to produce a throttled part of the first flow and a remaining part of the first flow is divided into a plurality of subflows of the first flow, with the throttled part of the first flow and the subflows of the first flow being mixed together with the second flow, wherein the mixed flows immediately change direction after the mixing. This claim is based on the description at, for example, page five of the present application.

Ashbrook et al. does not disclose the throttling of part of the flow in the inlet line 36 and dividing the remaining part of the flow into a plurality of subflows, with the throttled part and the subflows being mixed together with the flow in the inlet 38, and with the mixed flows immediately changing direction after the mixing as recited in Claim

12. It is thus respectfully submitted that independent Claim 12 and the associated dependent claims are also allowable.

Newly added dependent Claims 13-17 define additional distinguishing aspects associated with the claimed method at issue here. For example, Claims 13 and 17 recite that the plurality of subflows is achieved by passing the remaining part of the first flow through a plurality of through holes. Claims 14 and 15 recite that the first and second flows are liquid, and Claim 14 goes on to recite the passage of the first flow of liquid through spaced holes to achieve the subflows of the first liquid. These aspects of the claimed method are not disclosed in Ashbrook et al.

Claim 16 recites that the part of the first flow is throttled by passing the part of the first flow through a conical portion. Once again, this is not disclosed in Ashbrook et al.


Early and favorable action concerning this application is respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: October 7, 2010

By: 
Matthew L. Schneider
Registration No. 32814

Customer No. 21839
703 836 6620